

Claims:

1. A contact medium comprising a panel member formed to have a ball, plate or rope shape, and synthetic fibers with a diameter of less than 0.01mm and a length of less than 100mm attached to the external surface of the panel member.
- 5 2. An apparatus for treating wastewater using a contact medium, comprising:
 - a wastewater collection tank (15) for collecting the wastewater;
 - a biofilm contact reactor (13) including a plurality of first and second biofilm contact layers (2 and 3) alternately arranged vertically or horizontally in a collecting hopper (4);
 - 10 a precipitator (9) for receiving the wastewater from the wastewater collection tank (15) and the first-treated wastewater from the collecting hopper (4), and then precipitating sludge contained in the wastewater; and
 - 15 a wastewater circulation unit (11) for recycling decant water in the precipitator (9) and the wastewater collection tank (15) into the biofilm reactor (13).
3. The apparatus as set forth in claim 2,
 - wherein the precipitator (9) and the collecting hopper (4) are individually connected to a nitrogen/phosphorous treatment tank (17) for selectively treating
 - 20 nitrogen and phosphorous.
4. The apparatus as set forth in claim 2, further comprising an overflow tank (6) provided with an overflow dam (11) at a designated position on the upper portion of the precipitator (9).
5. The apparatus as set forth in claim 2,
 - 25 wherein the collecting hopper (4) includes a plurality of nozzles (1-1) for spraying wastewater supplied from first and second circulation pipes (5 and 6) at the top, a spray control valve for adjusting the spray amount of the wastewater at the bottom, and a bypass unit formed therethrough at a designated height.

6. The apparatus as set forth in claim 2,
wherein the collecting hopper (4) includes a titanium reactor installed at the top or bottom, and an ultraviolet ray lamp installed above the titanium reactor.

7. The apparatus as set forth in claim 2,
5 wherein biofilms are continuously combined with one another in the biofilm reactor 13, and the wastewater collection tank 15 includes a mobile tank, a collection tank, and an effluent tank.

8. A method for treating wastewater using a contact medium, comprising the steps of:
10 allowing wastewater to be collected by a wastewater collection tank (15);
allowing the wastewater to pass through a biofilm contact reactor (13) including a plurality of first and second biofilm contact layers (2 and 3) alternately arranged vertically or horizontally in a collecting hopper (4);
allowing the wastewater from the wastewater collection tank (15) and the
15 first-treated wastewater from the collecting hopper (4) to be introduced into a precipitator (9) so that sludge contained in the wastewater is precipitated in the precipitator (9); and
allowing decant water in the precipitator (9) and the wastewater collection tank (15) to be recycled into the biofilm reactor (13) by a wastewater circulation
20 unit (11).